AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Withdrawn)   A method for processing digital images received in the form of compressed video streams comprising the step of (a) determining a region intensity histogram (RIH) based on information on motion compensation of inter frames.

2. (Withdrawn)   The digital video processing method according to claim 1, before the step (a), further comprising the steps of:

(p-a) receiving video streams;

(p-b) grouping the video streams into a plurality of groups using a predetermined algorithm;

(p-c) selecting a group to be processed,

wherein in the step (a), the RIH of the selected group is determined based on information on motion compensation of inter frames.

3. (Withdrawn)   A method for processing digital images received in the form of compressed video streams comprising the step of:

(a) selecting an inter frame from the video streams;

(b) with respect to the selected inter frame, calculating the ratio of the number of blocks whose motion compensation values are zero to the total number of macroblocks;

(c) quantizing the ratio into i levels, where i is a predetermined positive number;

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(d) checking whether the processed inter frame is the last one;

(e) if it is determined in the step (d) that the processed inter frame is not the last one,

selecting the next inter frame and performing the steps (b) through (d);

(f) if it is determined in the step (d) that the processed inter frame is the last one,

calculating the ratio of the number of inter frames in the ith level to the total number of inter

frames in a given region; and

(g) determining the ratio obtained in the step (f) as predetermined histogram information.

4. (Withdrawn)   The digital video processing method according to claim 3, further

comprising the steps of:

(p-a) receiving video streams;

(p-b) grouping the video streams into a plurality of groups using a predetermined

algorithm;

(p-c) selecting a group to be processed,

wherein in the step (a), an inter frame is selected from the video stream group selected in

the step (p-c).

5. (Withdrawn)   The digital video processing method according to claim 4, after the

step (g), further comprising the steps of:

(h) checking whether the selected group is the last one;

(i) if it is determined in the step (h) that the selected group is not the last one, selecting

the next group; and

(j) performing the steps (a) through (h) with respect to the next group selected in the step

(i).

6. (Withdrawn)   The digital video processing method according to claim 4, wherein the predetermined algorithm is a scene cut detection algorithm.

7. (Withdrawn)   The digital video processing method according to claim 5, wherein the predetermined algorithm is a scene cut detection algorithm.

8. (Withdrawn)   The digital video processing method according to claim 4, wherein the video streams are moving picture expert group (MPEG)-7 video streams.

9. (Withdrawn)   The digital video processing method according to claim 5, wherein the video streams are moving picture expert group (MPEG)-7 video streams.

10. (Withdrawn)   The digital video processing method according to claim 6, wherein the video streams are moving picture expert group (MPEG)-7 video streams.

11. (Withdrawn)   The digital video processing method according to claim 7, wherein the video streams are moving picture expert group (MPEG)-7 video streams.

12. (Withdrawn)   The digital video processing method according to claim 3, wherein the predetermined histogram information is defined by a region intensity histogram (RIH) which indicates the intensity of a given video scene region.

13. (Withdrawn)   The digital video processing method according to claim 4, wherein the predetermined histogram information is defined by a region intensity histogram (RIH) which indicates the intensity of a given video scene region.

14. (Withdrawn)   The digital video processing method according to claim 5, wherein the predetermined histogram information is defined by a region intensity histogram (RIH) which indicates the intensity of a given video scene region.

15. (Withdrawn)   The digital video processing method according to claim 6, wherein the predetermined histogram information is defined by a region intensity histogram (RIH) which indicates the intensity of a given video scene region.

16. (Withdrawn)   The digital video processing method according to claim 7, wherein the predetermined histogram information is defined by a region intensity histogram (RIH) which indicates the intensity of a given video scene region.

17. (Withdrawn)   The digital video processing method according to claim 8, wherein the predetermined histogram information is defined by a region intensity histogram (RIH) which indicates the intensity of a given video scene region.

18. (Withdrawn)   The digital video processing method according to claim 9, wherein the predetermined histogram information is defined by a region intensity histogram (RIH) which indicates the intensity of a given video scene region.

19. (Withdrawn)   The digital video processing method according to claim 10, wherein the predetermined histogram information is defined by a region intensity histogram (RIH) which indicates the intensity of a given video scene region.

20. (Withdrawn)   The digital video processing method according to claim 11, wherein the predetermined histogram information is defined by a region intensity histogram (RIH) which indicates the intensity of a given video scene region.

21. (canceled).

22. (Withdrawn)   A computer readable medium having program codes executable by a computer to perform a digital video processing method comprising the steps of:

(a) selecting an inter frame from the video streams;

(b) with respect to the selected inter frame, calculating the ratio of the number of blocks whose motion compensation values are zero to the total number of macroblocks;

(c) quantizing the ratio into i levels, where i is a predetermined positive number;

(d) checking whether the processed inter frame is the last one;

(e) if it is determined in the step (d) that the processed inter frame is not the last one, selecting the next inter frame and performing the steps (b) through (d);

(f) if it is determined in the step (d) that the processed inter frame is the last one, calculating the ratio of the number of inter frames in the ith level to the total number of inter frames in a given region; and

(g) determining the ratio obtained in the step (f) as predetermined histogram information.

23. (Withdrawn)   The computer readable medium according to claim 22, wherein the digital video processing method further comprises:

(p-a) receiving video streams;

(p-b) grouping the video streams into a plurality of groups using a predetermined algorithm; and

(p-c) selecting a group to be processed, and wherein in the step (a), an inter frame is selected from the video stream group selected in the step (p-c).

24. (Withdrawn)   The computer readable medium according to claim 23, wherein after the step (g), the digital video processing method further comprises the steps of:

(h) checking whether the selected group is the last one;

(i) if it is determined in the step (h) that the selected group is not the last one, selecting the next group; and

(j) performing the steps (a) through (h) with respect to the next group selected in the step (i).

25. (Withdrawn)   The computer readable medium according to claim 23, wherein the predetermined algorithm is a scene cut detection algorithm.

26. (Withdrawn)   The computer readable medium according to claim 24, wherein the predetermined algorithm is a scene cut detection algorithm.

27. (Withdrawn)   The computer readable medium according to claim 22, wherein the video streams are MPEG-2 video streams.

28. (Withdrawn)   The computer readable medium according to claim 23, wherein the video streams are MPEG-2 video streams.

29. (Withdrawn)   The computer readable medium according to claim 24, wherein the video streams are MPEG-2 video streams.

30. (Withdrawn)   The computer readable medium according to claim 25, wherein the video streams are MPEG-2 video streams.

31. (Withdrawn)   The computer readable medium according to claim 26, wherein the video streams are MPEG-2 video streams.

32. (Withdrawn)   The computer readable medium according to claim 22, wherein the predetermined histogram information is defined by a region intensity histogram (RIH) which indicates the intensity of a given video scene region.

33. (Withdrawn)   A digital video processing apparatus comprising:

grouping means for grouping video streams using a predetermined algorithm, selecting a group to be processed, and selecting and outputting each inter frame from the selected group in sequence;

ratio calculating means for calculating the ratio of the number of blocks whose motion compensation values are zero to the total number of macroblocks, with respect to the selected inter frame;

quantizing means for quantizing the ratio into i levels, where i is a predetermined positive number, and outputting level indication signals which indicate the respective levels; and

region intensity histogram (RIH) calculating means for calculating the ratio of the number of inter frames in the ith level to the total number of inter frames in a region, and outputting the calculation result as RIH information.

34. (Withdrawn)   The digital video processing apparatus according to claim 33, wherein the predetermined histogram information is defined by a region intensity histogram (RIH) which indicates the intensity of a given video scene region.

35. (Withdrawn)   The digital video processing apparatus according to claim 33, further comprising RIH information storage means for receiving the RIH information and storing the same.

36. (Withdrawn)   The digital video processing apparatus according to claim 34, further comprising RIH information storage means for receiving the RIH information and storing the same.

37. (Withdrawn)   The digital video processing apparatus according to claims 35, wherein the RIH information storage means receives video stream data, interleaves the RIH information into the video stream data and outputs RIH information interleaved video streams.

38. (Withdrawn)   The digital video processing apparatus according to claims 36, wherein the RIH information storage means receives video stream data, interleaves the RIH information into the video stream data and outputs RIH information interleaved video streams.

39. (Withdrawn)   A digital video analyzing method comprising the step of calculating the difference between RIH_1 and RIH_2, which is denoted by *Distance (RIH_1, RIH_2)*, as represented by the following Expression:

$$Distance\ (RIH_1,\ RIH_2) = (RIH_1 - RIH_2)^T M^{-1}(RIH_1, RIH_2)$$

wherein, of two video streams in a given video scene, RIH information of the first video stream is RIH_1, RIH information of the second video stream is RIH_2, and M is a covariance matrix.

40. (Withdrawn)   The digital video analyzing method according to claim 39, further comprising the step of determining the calculated difference by the difference in intensity between two video streams.

41. (Withdrawn)   A method for searching for a desired digital video scene in compressed video streams comprising the step of:

(a) receiving video streams;

(b) grouping the video streams into a plurality of groups using a predetermined algorithm;

(c) selecting a group to be processed;

(d) determining a region intensity histogram (RIH) of the selected group based on information on motion compensation of inter frames in the selected group;

(e) selecting a video scene to be searched;

(f) retrieving RIH information of the selected video scene; and

(g) searching regions having similar RIH information based on the retrieved RIH information, in each of the processed video streams.

42. (Withdrawn)   An apparatus for searching for a desired digital video scene in compressed video streams comprising:

grouping means for grouping input video streams into a plurality of groups using a predetermined algorithm;

motion compensation information retrieving means for retrieving information on motion compensation of inter frames from a selected group and outputting processed video streams including the information as the RIH information of the selected group; and

searching means for retrieving RIH information of a selected group to be searched and searching for regions having similar RIH information based on the retrieved RIH information.

43. (Withdrawn)   A digital video processing apparatus comprising:

a grouping unit for grouping video streams using a predetermined algorithm, selecting a group to be processed, and selecting and outputting each inter frame from the selected group in sequence;

a ratio calculating unit for calculating the ratio of the number of blocks whose motion compensation values are zero to the total number of macroblocks, with respect to the selected inter frame;

a quantizing unit for quantizing the ratio into i levels, where i is a predetermined positive

number, and outputting level indication signals which indicate the respective levels; and

a region intensity histogram (RIH) calculating unit for calculating the ratio of the number

of inter frames in the ith level to the total number of inter frames in a region, and outputting the

calculation result as RIH information.

44. (Withdrawn)   The digital video processing apparatus according to claim 43,

wherein the predetermined histogram information is defined by a region intensity histogram

(RIH) which indicates the intensity of a given video scene region.

45. (Withdrawn)   The digital video processing apparatus according to claim 43,

further comprising a region intensity histogram (RIH) information storage unit for receiving the

RIH information and storing the same.

46. (Withdrawn)   The digital video processing apparatus according to claim 44,

further comprising a region intensity histogram (RIH) information storage unit for receiving the

RIH information and storing the same.

47. (Withdrawn)   The digital video processing apparatus according to claims 43,

wherein the RIH information storage unit receives video stream data, interleaves the RIH

information into the video stream data and outputs RIH information interleaved video streams.

48. (Withdrawn)   An apparatus for searching for a desired digital video scene in

compressed video streams comprising:

a grouping unit for grouping input video streams into a plurality of groups using a

predetermined algorithm;

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a motion compensation information retrieving unit for retrieving information on motion

compensation of inter frames from a selected group and outputting processed video streams

including the information as the RIH information of the selected group; and

a searching unit for retrieving RIH information of a selected group to be searched and

searching for regions having similar RIH information based on the retrieved RIH information.

49.   (previously presented):   An apparatus for processing video data comprising:

a motion intensity level calculation unit calculating motion intensity levels indicating a

motion intensity of respective inter frames included in an input video data by using motion

compensation information of the respective inter frames; and

a histogram calculation unit calculating a histogram indicating frequency of the

respective motion intensity levels based on the motion intensity levels of respective inter frames.

50.   (currently amended):   The apparatus of claim ~~1~~49, wherein the histogram comprises a

plurality of ratios, a respective ratio being a number of inter frames having the respective motion

intensity levels to a number of all inter frames included in the input video data.

51.   (currently amended):   The apparatus of claim ~~1~~49, wherein the motion intensity level is

calculated by using motion compensation values of respective predetermined sized blocks

included in an inter frame.

52.   (currently amended):   The apparatus of claim ~~1~~49, wherein the motion intensity level is

a ratio of a number of blocks having zero motion compensation values to a number of all of

predetermined sized blocks included in an inter frame.

53.   (currently amended):   The apparatus of claim ~~1~~49, further comprising:

        a grouping unit dividing a video stream into at least one video data, selecting the input

video data among the at least one video data and outputting the input video data to the motion

intensity level calculation unit.

54.   (currently amended):   The apparatus of claim 4 52, further comprising:

        a quantization unit quantizing the motion intensity levels and outputting the quantized

motion intensity levels to the histogram calculation unit.

55.   (currently amended):   The apparatus of claim ~~5~~53, wherein the grouping unit divides the

video stream by using a scene cut detection algorithm.